

1. (Four Times Amended) A hydrogen purifying apparatus for oxidizing and removing carbon monoxide in a reformed gas containing carbon monoxide in addition to a main component of hydrogen gas, comprising a reaction segment having a catalyst bed for oxidizing carbon monoxide, a reformed gas inlet and a reformed gas pathway for supplying said reformed gas to said reaction segment, an oxidant gas supplying segment for supplying an oxidant gas to said reformed gas pathway, a cooler for cooling an upstream side of said catalyst bed, and means for heating a downstream side of said catalyst bed,

wherein said means for heating the downstream side of said catalyst bed is the reformed gas in a portion of the reformed gas pathway located in proximity to said catalyst bed and separated from the catalyst bed by a wall so as to heat said downstream side of said catalyst bed by said reformed gas before passing through said cooler.

2. (Three Times Amended) The hydrogen purifying apparatus in accordance with claim 1, wherein an upstream side portion of the catalyst bed is formed of different catalyst material than that of a downstream side portion, and the catalyst material constituting said downstream side portion exerts an activity at lower temperature than the catalyst material constituting said upstream side portion.

3. (Amended) The hydrogen purifying apparatus in accordance with claim 3, wherein at least a portion of said catalyst material in said upstream and downstream sides of the catalyst bed is supported by a metallic material.

4. (Twice Amended) The hydrogen purifying apparatus in accordance with claim 1, further comprising a gas flow rate control valve located on the oxidant gas supplying segment for changing an amount of oxidant gas to be supplied in correspondence with a temperature of said catalyst bed.

8. (Four Times Amended) The hydrogen purifying apparatus in accordance with claim 1, wherein said reformed gas pathway has a first direction prior to passing through said cooler, and a second direction passing through said catalyst bed, wherein the first direction and second direction are opposing.

9. (Twice Amended) The hydrogen purifying apparatus in accordance with claim 1, wherein said reaction segment is located outside the reformed gas pathway.

10. (Twice Amended) The hydrogen purifying apparatus in accordance with claim 1, wherein said reaction segment is tube-shaped and said reformed gas pathway before the passage through said cooler is formed around said reaction segment.

21. (Amended) A hydrogen purifying apparatus for oxidizing and removing carbon monoxide in a reformed gas containing carbon monoxide in addition to a main component of hydrogen gas, comprising a reaction segment having a catalyst bed for oxidizing carbon monoxide, a reformed gas inlet and a reformed gas pathway for supplying said reformed gas to said reaction segment, an oxidant gas supplying segment for supplying an oxidant gas to said reformed gas pathway, a cooler for cooling said reformed gas in said reformed gas pathway in a vicinity of an upstream side of said catalyst bed, and means for heating a downstream side of said catalyst bed,

wherein said reformed gas pathway at least partially surrounds said catalyst bed, such that said means for heating said downstream side of said catalyst bed comprises at least a portion of said reformed gas in said reformed gas pathway and such that said reformed gas is cooled in said reformed gas pathway by said catalyst bed before passing through said cooler.

23. (Amended) The hydrogen purifying apparatus in accordance with claim 21, wherein an upstream side portion of the catalyst bed is formed of different catalyst material

than that of a downstream side portion, and the catalyst material constituting said downstream side portion exerts an activity at lower temperature than the catalyst material constituting said upstream side portion.

24. (Amended) The hydrogen purifying apparatus in accordance with claim 23, wherein at least a portion of said catalyst material in said upstream and downstream sides of the catalyst bed is supported by a metallic material.

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25. (Amended) The hydrogen purifying apparatus in accordance with claim 21, further comprising a gas flow rate control valve for changing an amount of oxidant gas to be supplied in correspondence with a temperature of said catalyst bed.

26. (Amended) The hydrogen purifying apparatus in accordance with claim 21, wherein said reformed gas has a first direction prior to passing through said cooler, and a second direction after passing through said catalyst bed, wherein the first direction and second direction are opposing. -

REMARKS

Claims 1, 3-4, 6, 8-11, 21 and 23-26 are currently pending in the application.

Claims 12-17, 19-20 and 22 have been cancelled without prejudice to the filing of a divisional application. Claims 1, 3-4, 6, 8-10, 21 and 23-26 have been amended in order to obviate the Examiner's claim objections and rejections under § 112 rejections, second paragraph. No new matter has been added by these formal amendments to the claims, and entry is respectfully requested.

The Examiner has objected to the drawings under 37 C.F.R. 1.83(a) implying that, in reference to claim 11, the "two or more reaction segments connected in parallel" are not